

# Modern Metals

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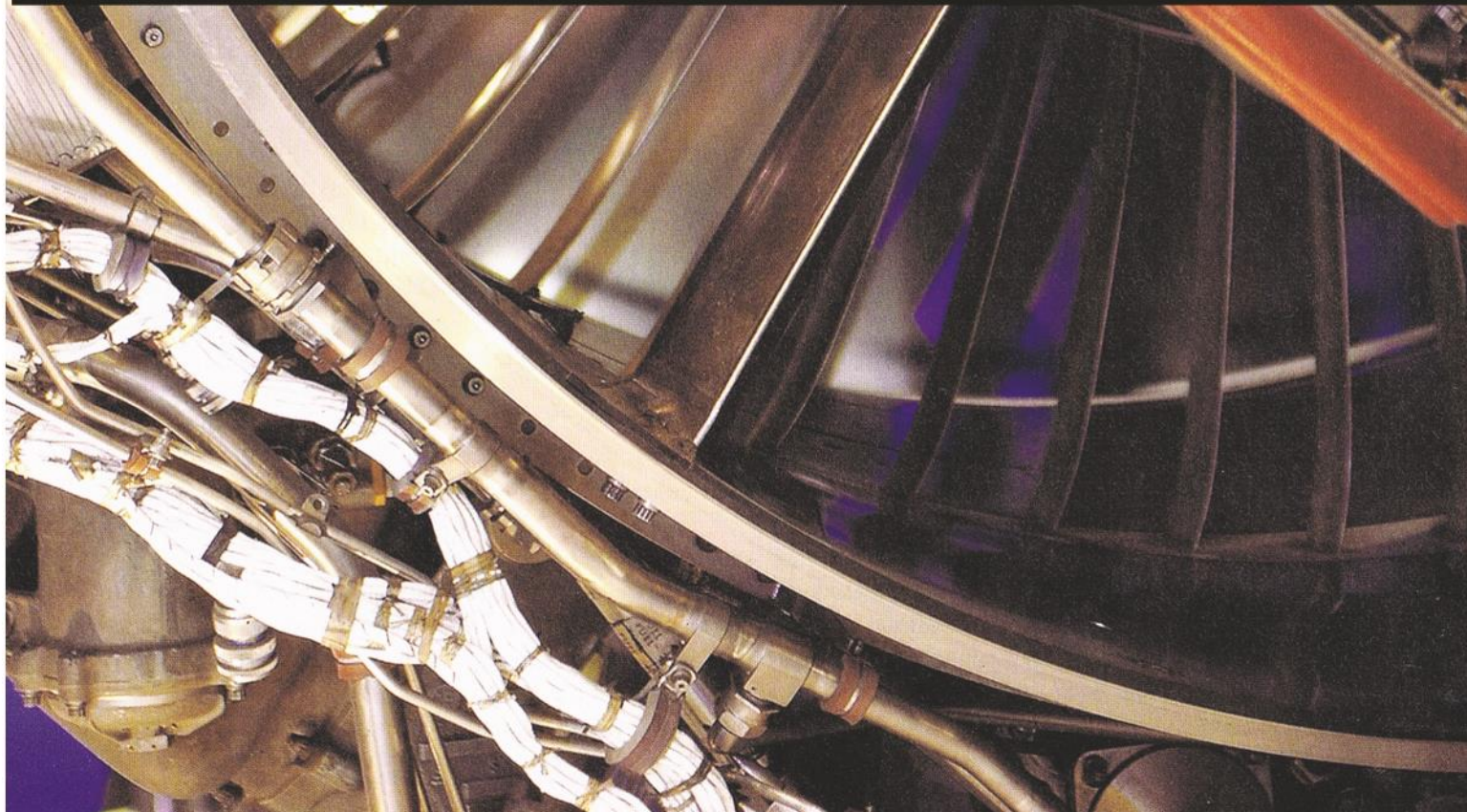
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A TREND Publication November 2013



OEM REPORT // AEROSPACE

## GAME-CHANGING MATERIALS



BY LAUREN DUENSING

# Keeping operations rolling

Menges Roller Co. is capable of fabricating rolls, as well as performing rubber covering in-house, saving customers time and money



Menges Roller re-covered these three rollers for Elgiloy in August.

**C**oil converters today are in a race to become more competitive, and they're employing a wide variety of methods to achieve that goal. Menges Roller Co., of Wauconda, IL, a designer, manufacturer and refurbisher of industrial rollers, uses its 40-plus years of experience to help customers maximize productivity by choosing the right rollers for their specific application. The company was founded in 1966 by Lou Menges, the father of current company president Matthew Menges. In addition, a third-generation family member has joined the company as Charlie Menges is now working in sales.

"We help customers run faster, waste less and produce a better end product," says Jeff Awe, Menges' Marketing Director. "Rollers can do this if engineered properly, but it takes good cooperation and communication with the coil converter."

Menges Roller has a specially designed roller manufacturing facility and has invested heavily in its engineering dept. "to do more than generate prints and schematics," says Jim Cahill, Sales Representative. "We can model complex processes to determine the optimal roller dimensions. We use technology to test load-bearing stats and pressure variations to see how well the roll will perform in the actual plant...all before the roller is built. This system allows us to build precision rolls with rock-solid durability."

## Re-Engineering Rollers

Menges Roller's expertise allows them to meet their customers' specific needs.

"We are also able to take existing rollers and reverse engineer them," Cahill says. "Customers come to us because they have confidence we will provide a perfect replacement core, coupled with the most appropriate rubber covering for their application. This represents substantial cost-savings versus going to the OEM for a replacement roller. Plus, Menges can make custom modifications to solve the plant's unique challenges."

Menges also helps customers increase speeds by ensuring rolls are properly balanced. "The roll's balance must be in tune with the line's surface feet per minute speed," Cahill says. "Our balancing system gathers data from the roller then our technicians use that data to fine tune its weight & balance specs."

"Rollers are critical to most coil converting operations. They have to be within specification. They have to be able to perform or the customer won't meet their production numbers. If the roller is not right, it shuts the machine down, and that costs money. If the roller gets off balance or has a bent shaft, that can damage the steel stock," explained Mr. Cahill.

## Partnering for Success

Elgiloy Specialty Metals, Elgin, IL, was born when servicemen returning from WWII complained their Elgin watches couldn't endure corrosive environments. The company conducted four years of research and invented a noncorroding watch spring material. The durable material soon found use in aerospace, medical device and petrochemical applications, and the company added additional compatible alloys. Today, Elgiloy produces more than 40 high-performance alloys.

## TYPES OF COIL PROCESSING ROLLERS

There can be as many as 200 rollers in a line. Here are typical examples:

- **Bridle rollers** are used in steel processing and coil coating. Multiple bridle rolls work together to control slack in the line. They also help move material to wash tanks and various stations.
- **After washing, squeegee rollers** remove excess liquid from the coil material
- **Nip rollers** are a driven roller that pull material through processing stations
- **Steering rollers** are similar to pinch rollers, moving steel coil into required processes such as annealing
- **General carrier rollers** support the coil strip as it moves through the plant
- **Tension stand rollers** are key to slitting lines. Their large size is utilized to direct wide coil stock through the slitter.

**A journal shaft that's been badly beaten.**



**Menges Roller fabricated a new journal, installed it, and applied a new rollcover, complete with herringbone grooves.**



To process these materials, Elgiloy has a variety of rollers: pass line rollers, bridge rollers, wringer rollers, acid squeegee rollers and exit rollers. Menges Roller built the original rollers for Elgiloy's line, and when Elgiloy wanted to re-engineer its rollers, the company decided to deal with Menges directly.

"Jim has worked with Elgiloy for over 15 years," Awe says. "As they've expanded from two plants to five, he's been there to help refurbish existing machines, widen lines and help expand their capabilities."

Elgiloy Specialty Metals' Hampshire, IL, facility is a fully integrated rerolling mill that cold reduces stainless steels to very thin gauges. The Hampshire facility can process 200, 300 and 400 series stainless steels, as well as high-temperature nickel alloys and titanium from 0.100 inch thick to as thin as 0.003 inch.

"Menges was doing work for our Elgin location and they were a natural fit here at Hampshire," says Mark Milie, General Manager at Elgiloy in Hampshire. "Roll covers are designed and selected for heat resistance, chemical resistance and wearability. We've worked hard to develop specific coverings for each application."

### Specific Solutions

Milie says one application where Menges Roller helped Elgiloy address a specific issue was on their furnace lines, where the steel is cleaned with a strong cleaning agent mixed with water.

"This chemical was penetrating the rubber rollcover, resulting in catastrophic failures, so Menges developed a solution that offered stability in this very caustic environment" Milie says.

"Roller breakdown is primarily caused by two factors—temperature and water," Cahill says. "You have a steel roller with a rubber coating, and in between is a bonding agent," Awe adds. "They had the roller in a bath, and the liquid was getting between the rubber and the steel roller core. The chemical was breaking down the bonding agent. Jim met with Elgiloy to come up with an innovative solution. We capped the ends and went to a higher grade of rubber. We increased roller life three to four times and reduced their maintenance cost substantially."

Elgiloy's long-term relationship with Menges Roller is built upon this type of solution-solving customer service.

"With good record keeping, we've developed a preventive maintenance schedule so roll changes are a planned event," Milie says. "Unplanned changes are occasionally required, but we've determined optimum duration for most applications."

For unplanned roll changes, Menges is capable of sending rolls out on a rush basis, Cahill says. "Elgiloy will schedule maintenance days, but sometimes things happen beyond their control, so we turn rollers around in just two to three days, so they don't have equipment downtime. This has also been key to developing our long-term relationship with Elgiloy"

Whether it's solving a customer's problem or providing emergency roller delivery, Menges Roller focuses on serving each customer's individual needs.

"No two lines or customers are alike so there's a lot of customization" says Awe. He says sometimes Menges doesn't even know the details of what their rollers will be used for because the process details are secret. "We often engineer special rollers for proprietary applications, but first you have to develop trust with the customer, as we have done with Elgiloy over the years." **MM**



**A set of rollers from Elgiloy's Hampshire plant.**

**Left: Worn, scraped-up rubber. This produces imperfections in Elgiloy's finished metal.**

**Right: Menges stripped the old rubber, made repairs and applied new synthetic rubber.**



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*Menges manufactures a wide variety of new rollers for the coil converting industry.*

**Below is a short list of examples:**

- **Bridle Rollers**
- **Tension Stand Rollers**
- **Squeegee & Pinch Rollers**
- **Contact & In-Feed Rollers**
- **Hold-Down & Guide Rolls**
- **Rollers for Flattening & Straightening Machines**
- **Heat Transfer Rollers & Chill Rollers**
- **Custom rollers, specially designed & fabricated for your unique application**

*We also provide a range of repair & refurbishing services:*

- **Re-Covering of Covered Rolls (we stock 40+ urethane, silicone, rubber and synthetic compounds)**
- **Journal Repair & Replacement**
- **Precision Grinding (perfect for flattening rolls & other rolls that need to be ‘trued-up’)**
- **Roller Balancing Services**
- **Thermal Spray Applications**
- **Grooving, Serrating and Crowning of Rollcovers**
- **Roller Design & Engineering Services (featuring advanced strength & stress-testing technology)**

**Menges Roller Company is based in Northeast Illinois and serves customers worldwide with precision-manufactured industrial rollers and comprehensive roller repair services.**

**Call us today and speak with an experienced Sales Engineer: we understand your industry’s challenges and can provide effective solutions to your process challenges.**